AMENDMENTS TO THE CLAIMS

These clarifying amendments introduce no new matter and support for the amendments is replete throughout the specification as originally filed. These amendments are made without prejudice and are not to be construed as an abandonment of the previously claimed subject matter, or agreement with any objection or rejection of record.

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS

1. (Currently amended) A high throughput processing system, the system comprising:

(a) a plurality of rotational robots, wherein each of the rotational robots has a reach which defines a work perimeter associated with that rotational robot**, wherein at least one of the rotational robots comprises a grasping mechanism that comprises moveably coupled arms that are structured to grasp an object, wherein at least one arm comprises a pivot member having a support surface to support the object and a height adjusting surface that pushes the object into contact with the support surface when the arms grasp the object**;

(b) at least one device associated with each of the ~~**member**~~ rotational robots and the associated work perimeters~~**, wherein at least one of the work perimeters has two or more devices exclusively within the reach of the rotational robot associated with that work perimeter**~~; **and,**

(c) one or more transfer stations, wherein each ~~**member**~~ transfer station is associated with two work perimeters~~**, and wherein at least one of which transfer stations in the high throughput processing system comprises a first pin tool; and**~~

~~**(d) a controller operationally coupled to the first pin tool, wherein the controller comprises instructions that direct the first pin tool to transfer an aliquot of a sample from a sample holder to an assay container after the sample holder and assay container are placed on the transfer station comprising the first pin tool**~~.

2. **(Currently amended)** The high throughput processing system of claim **1**, wherein the system further comprises one or more storage modules associated with **at least one of the rotational robots** ~~**a member rotational robot**~~ and the associated work perimeter, wherein ~~**a member storage module provides**~~ **the storage modules provide** storage capacity for a plurality of test samples.

3. **(Currently amended)** The high throughput processing system of claim **2**, wherein the plurality of test samples in the ~~**member storage module**~~ **storage modules** comprise chemical or biochemical compounds, nucleic acids, peptides, polypeptides, proteins, carbohydrates, cells, serum, phage particles, virions, enzymes, cell extracts, lipids, or antibodies.

4. **(Original)** The high throughput processing system of claim **3**, wherein the test samples comprise a library of cDNA molecules.

5. **(Original)** The high throughput processing system of claim **3**, wherein the test samples comprise a library of gene regulatory regions operably linked to a reporter gene.

6. **(Original)** The high throughput processing system of claim **5**, wherein the regulatory regions in the library are derived from genes that are differentially expressed in a cell depending upon the presence or absence of a particular stimulus.

7. **(Original)** The high throughput processing system of claim **3**, wherein the test samples comprise a library of antisense nucleic acids or double-stranded RNA molecules.

8. **(Original)** The high throughput processing system of claim **3**, wherein the test samples comprise a combinatorial library of chemical compounds.

9. **(Currently amended)** The high throughput processing system of claim **2**, wherein the at least one device associated with one of the ~~**member**~~ rotational robots and associated work perimeter comprises one or more incubators for incubating the assay containers.

10. **(Previously Presented)** The high throughput processing system of claim **9**, wherein the assay containers comprise one or more components of an assay, and a test

sample is added to the assay containers to determine the effect of the test samples on the assay.

11. (Original) The high throughput processing system of claim **10**, wherein the assay is selected from the group consisting of a G-protein coupled receptor assay, a kinase assay, a protease assay, a phosphatase assay, and a transcription assay.

12. (Original) The high throughput processing system of claim **10**, wherein the assay is a cell-based assay.

13. (Previously Presented) The high throughput processing system of claim **2**, wherein the plurality of test samples comprise one or more of specimen plates, multiwell plates, petri dishes, test tube arrays, vials, crucibles, flasks, reaction vessels, or slides.

14. (Previously Presented) The high throughput processing system of claim **13**, wherein the plurality of test samples comprise one or more of 1536-well plates, 384-well plates, or 96-well plates.

15. (Previously presented) The high throughput processing system of claim **14**, wherein a first work perimeter comprises a storage module that contains 384-well plates and a second work perimeter comprises an incubator that contains 1536-well plates.

16. (Original) The high throughput processing system of claim **1**, wherein the rotational robots each comprise one or more grippers configured to transport the sample holders.

17. (Original) The high throughput processing system of claim **16**, wherein the gripper comprises a sensor structured to determine a location of the gripper apparatus relative to the object.

18. (Original) The high throughput processing system of claim **16**, wherein the gripper comprises a deflectable member structured to couple the gripper apparatus to a robotic member, which deflectable member is structured to deflect when the gripper apparatus contacts an item with a force greater than a preset force.

19. (Currently amended) The high throughput processing system of claim **1**, **wherein at least one of the transfer stations comprises a first pin tool and,** wherein a transfer station other than the at least one transfer station comprising the first pin tool transfers the one or more samples by transferring a sample holder from the first or second work perimeter to another ~~**member**~~ work perimeter.

20. (Cancelled)

21. (Original) The high throughput processing system of claim **1**, wherein the rotational robots are configured to transport one or more sample holders along a multi-directional path.

22. (Original) The high throughput processing system of claim **1**, wherein the system comprises between 2 and 10 rotational robots.

23. (Currently amended) The high throughput processing system of claim **1**, wherein the ~~**member**~~ devices associated with each of the work perimeters are independently selected from the group consisting of: a fluid transfer device, a mixer, an incubator, a storage compartment, a thermocycler, a plate carousel, an automatic sample processor, a detector, and a replating station.

24. (Currently amended) The high throughput processing system of claim **23**, wherein ~~**the member device comprises**~~ **one or more of the devices comprise** a fluid transfer device.

25. (Currently amended) The high throughput processing system of claim **24**, wherein the fluid transfer device comprises an apparatus selected from the group consisting of: a ~~**second**~~ pin tool, a syringe, and a pump.

26. (Previously presented) The high throughput processing system of claim **24**, wherein at least one of the sample holders is a multiwell plate and the fluid transfer device further comprises an array of receptacles arranged such that outlets of the receptacles are aligned with a plurality of wells of the multiwell plate.

27. (Original) The high throughput processing system of claim **26**, wherein the fluid transfer device comprises 96 or 384 receptacles.

28. (Original) The high throughput processing system of claim **26**, wherein the receptacles are syringes.

29. (Original) The high throughput processing system of claim **26**, wherein the fluid transfer device:

aspirates a volume of sample into one or more of the receptacles from a well of a multiwell plate which is aligned with the outlet of the receptacle;

returns a substantial portion of the volume of the aspirated sample to the well of the multiwell plate, the returned volume of the liquid being less than the aspirated volume so that a volume of sample is retained in the receptacle;

dispenses a portion of the retained volume of sample into a well of a second multiwell plate; and

discards any remaining volume of retained liquid.

30. (Original) The high throughput processing system of claim **29**, wherein the volume of the aspirated sample is at least several times the volume of dispensed sample.

31. (Currently amended) The high throughput processing system of claim **25**, wherein at least one of the sample holders is a multiwell plate and the fluid transfer device is a ~~**second**~~ pin tool that comprises an array of pins that are aligned with a plurality of wells of the multiwell plate.

32. (Currently amended) The high throughput processing system of claim **31**, wherein the ~~**second**~~ pin tool further comprises one or more wash stations in which the pins are washed between transfers of fluid from one multiwell plate to another by the pin tool.

33. (Original) The high throughput processing system of claim **24**, wherein the fluid transfer device does not comprise disposable pipette tips.

34. (Original) The high throughput processing system of claim **33**, wherein no fluid transfer device in the system comprises disposable pipette tips.

35. (Original) The high throughput processing system of claim **24**, wherein the fluid transfer device comprises a positive displacement pump coupled to a dispenser valve.

36. (Original) The high throughput processing system of claim **1**, wherein one or more of the devices comprises an automatic sample processor.

37. (Original) The high throughput processing system of claim **23**, wherein one or more of the devices comprises an incubator or storage compartment.

38. (Original) The high throughput processing system of claim **37**, wherein the system comprises storage compartments that provide storage capacity for at least 350,000 samples.

39. (Original) The high throughput processing system of claim **38**, wherein the storage compartments provide storage capacity for at least 700,000 samples.

40. (Original) The high throughput processing system of claim **39**, wherein the storage compartments provide storage capacity for at least 1,400,000 samples.

41. (Original) The high throughput processing system of claim **37**, wherein the incubator or storage compartment comprises:

(a) a housing comprising a plurality of doors, which doors close at least one opening disposed through at least one surface of the housing;

(b) at least one movable shelf disposed within the housing, which shelf is capable of aligning with the opening;

wherein each of the plurality of doors is independently accessible by the rotational robot.

42. (Original) The high throughput processing system of claim **23**, wherein one or more of the devices comprises a detector which detects one or more readouts of assay results.

43. (Original) The high throughput processing system of claim **42**, wherein the detector comprises a device selected from the group consisting of a fluorescence detector, a spectrophotometric detector, a luminescence detector, a phosphorescence detector, an X-ray

detector, a radio-frequency detector, a bar code reader, a mass spectrometer, a radioactivity detector, and an optical detector.

44. (Original) The high throughput processing system of claim **42**, wherein the detector comprises a camera which records images of the assay results.

45. (Original) The high throughput processing system of claim **44**, wherein the images are digital images.

46. (Original) The high throughput processing system of claim **44**, wherein the images are analyzed to determine assay results which indicate a desired effect of a test sample.

47. (Original) The high throughput processing system of claim **1**, wherein the system can perform assays of at least 100,000 samples in one day.

48. (Original) The high throughput processing system of claim **47**, wherein the system can perform assays of at least 350,000 samples in one day.

49. (Original) The high throughput processing system of claim **48**, wherein the system can perform assays of at least 700,000 samples in one day.

50. (Previously presented) The high throughput processing system of claim **1**, wherein one or more of the devices comprises a positioning device that comprises at least a first alignment member that is positioned to contact an inner wall of a multiwell plate when the multiwell plate is in a desired position on the device.

51. (Original) The high throughput processing system of claim **50**, wherein the positioning device further comprises a pusher that can move the multiwell plate in a first direction to bring at least a first inner wall of the multiwell plate into contact with one or more of the alignment members.

52. (Original) The high throughput processing system of claim **51**, wherein the positioning device further comprises a second pusher that can move the multiwell plate in a second direction to bring a second inner wall of the multiwell plate into contact with one or

more alignment members that are positioned to contact the second inner wall of the multiwell plate when the multiwell plate is in a desired position on the device.

53. (Previously presented) The high throughput processing system of claim **2**, wherein the system further comprises sample holders and one or more sample holder lids.

54. (Original) The high throughput processing system of claim **53**, wherein the sample holders are multiwell plates and the lids comprise:

a cover having a top surface, a bottom surface, and a side;

an alignment protrusion extending from the side of the cover, the alignment protrusion positioned to cooperate with an alignment member of the multiwell plate;

a sealing perimeter positioned on the bottom surface of the cover; and

wherein the alignment protrusion facilitates aligning the lid to the plate so that a seal is compressibly received between the sealing perimeter and a sealing surface of the multiwell plate.

55. (Original) The high throughput processing system of claim **53**, wherein one or more of the work perimeters comprises a de-lidding station at which a lid is removed from a sample holder.

56. (Original) The high throughput processing system of claim **53**, wherein the lid is constructed from stainless steel.

57. (Currently amended) The high throughput processing system of claim **1**, wherein the controller is operably coupled to one or more of the ~~**member**~~ rotational robots.

58. (Original) The high throughput processing system of claim **57**, wherein the controller directs transport of the sample holders between one or more of the work perimeters or between one or more of the devices.

59. (Original) The high throughput processing system of claim **58**, wherein said transport is non-sequential or non-linear transport.

60. (Original) The high throughput processing system of claim **57**, wherein the controller is configured to receive operator instructions and provide operator information.

61. (Original) The high throughput processing system of claim **60**, wherein the operator instructions are received through a graphical user interface.

62. (Original) The high throughput processing system of claim **57**, wherein a separate controller controls each rotational robot.

63. (Original) The high throughput processing system of claim **62**, wherein the system further comprises an operator interface that receives operator instructions and provides operator information from each controller.

64. (Original) The high throughput processing system of claim **1**, further comprising an operator alert operably coupled to the system.

65. (Original) The high throughput processing system of claim **64**, wherein the operator alert comprises a visual alert, an audio alert, or a paging alert.

66. (Original) The high throughput processing system of claim **1**, wherein the system comprises a first work perimeter directed to test sample storage and a second perimeter directed to performing an assay.

67. (Original) The high throughput processing system of claim **66**, wherein the test samples comprise chemical compounds.

68. (Original) The high throughput processing system of claim **66**, wherein the transfer station comprises a fluid transfer device that transfers an aliquot of a test sample from a sample holder that comprises test samples to an assay sample holder in which an assay is to be performed.

69. (Original) The high throughput processing system of claim **68**, wherein the assay sample holder comprises one or more of living cells, cell extracts, nucleic acids, polypeptides, antibodies, or chemicals.

70. (Original) The high throughput processing system of claim **66**, wherein the assay comprises one or more of a biochemical, chemical, biological, microbiological, or cell-based assay.

71. (Original) The high throughput processing system of claim **66**, wherein the second work perimeter comprises an incubator for maintaining the assay sample holders in a desired environment.

72. (Original) The high throughput processing system of claim **66**, wherein the system further comprises a detection device for collecting data from the assay.

73. (Original) The high throughput processing system of claim **72**, wherein the detection device is located in the second work perimeter.

74. (Original) The high throughput processing system of claim **72**, wherein the detection device is located in a third work perimeter.

75-89 (Canceled).